

Exhibit 2.9: Percentages of Students Reaching International Benchmarks of Science Achievement Across Assessment Years

Country	Advanced International Benchmark (625)						High International Benchmark (550)					
	Percent of Students						Percent of Students					
	2019	2015	2011	2007	2003	1995	2019	2015	2011	2007	2003	1995
Singapore	38	37	33	36	25 ▲	14 ▲	74	71	68 ▲	68 ▲	61 ▲	42 ▲
Korea, Rep. of	29	29	29			22 ▲	73	75	73			67 ▲
Russian Federation	18	20	16	16	11 ▲		63	62	52 ▲	49 ▲	39 ▲	
Japan	17	19	14 ▲	12 ▲	12 ▲	15 ▲	59	63 ▽	58	51 ▲	49 ▲	54 ▲
Finland	15	13	20 ▽				56	54	65 ▽			
Chinese Taipei	15	14	15	19 ▽	14		57	56	53 ▲	55	52 ▲	
United States	15	16	15	15	13	19 ▽	48	51	49	47	45	50
Bulgaria	15	16					44	50				
Sweden	11	11	10	8 ▲			45	47	44	37 ▲		
Australia	11	8 ▲	7 ▲	10	9	13	44	39 ▲	35 ▲	41	38 ▲	40
Lithuania	11	7 ▲	4 ▲	3 ▲	3 ▲		45	39 ▲	31 ▲	30 ▲	30 ▲	
England	10	10	11	14 ▽	15 ▽	15 ▽	44	43	42	48	47	42
Hungary	10	14 ▽	13 ▽	13 ▽	10	7 ▲	42	50 ▽	46	47 ▽	42	32 ▲
Norway (5)	9	7					46	44				
Poland	9	12 ▽					42	51 ▽				
Ireland	9	7	7			8	41	40	35 ▲			36 ▲
Hong Kong SAR	8	16 ▽	9	14 ▽	7	5 ▲	41	55 ▽	45	55 ▽	47 ▽	30 ▲
Czech Republic	8	9	10	7		12 ▽	43	43	44	33 ▲		42
Latvia	8				8		48				41 ▲	
United Arab Emirates	7	6	3 ▲				27	22 ▲	14 ▲			
Canada	7	7					37	38				
Austria	7		8	9		13 ▽	38		42 ▽	39		45 ▽
Serbia	7	8	8				36	40 ▽	35			
Germany	7	8	7	10 ▽			37	40	39	41 ▽		
Slovak Republic	7	9	10 ▽	11 ▽			39	40	44 ▽	42		
Bahrain	6	4 ▲	4 ▲				28	19 ▲	17 ▲			
Cyprus	6	2 ▲			2 ▲	1 ▲	31	18 ▲			17 ▲	11 ▲
Denmark	6	7	8 ▽	7			36	39	39	35		
New Zealand	6	6	5	8 ▽	9 ▽	11 ▽	30	32	28	32	38 ▽	35 ▽
Northern Ireland	5	5	5				35	34	33			
Kazakhstan	5		7				23		28 ▽			
Malta	5		2 ▲				27		14 ▲			
Oman	4	4	1 ▲				17	16	7 ▲			
Netherlands	4	3	3	4	3	6	33	30	37	34	32	38
Croatia	4	6 ▽	3				34	41 ▽	30 ▲			
Qatar	3	3	2				18	15	11 ▲			
Spain	3	5 ▽	4				30	34 ▽	28			
Italy	3	4	8 ▽	13 ▽	9 ▽		27	32	37 ▽	44 ▽	35 ▽	
France	3	2					22	20				
Portugal	2	2	7 ▽			2	26	25	35 ▽			13 ▲
Belgium (Flemish)	2	3	2		2		24	27	24		28 ▽	
Kuwait	2	1 ▲					10	4 ▲				
Morocco	2	1	0 ▲				7	5	1 ▲			
Armenia	2	1	1 ▲		2		14	10 ▲	6 ▲		10 ▲	
Georgia	1	1	1	1 ▲			12	12	13	5 ▲		
Chile	1	2	2 ▽				14	16	19 ▽			
Iran, Islamic Rep. of	1	1	3 ▽	2	1 ▲	0 ▲	13	9 ▲	16 ▽	12	7 ▲	3 ▲
Saudi Arabia	1	1	3 ▽				8	8	12 ▽			
Azerbaijan	1		2 ▽				8		13 ▽			
Philippines	0				2		1				6 ▽	
Benchmarking Participants												
Dubai, UAE	17	14 ▲	6 ▲	4 ▲			52	42 ▲	23 ▲	21 ▲		
Ontario, Canada	8	9	9	12 ▽	13 ▽	10	38	41	40	45 ▽	47 ▽	37
Quebec, Canada	5	6	3 ▲	5	3 ▲	9 ▽	34	35	29 ▲	32	25 ▲	40
Abu Dhabi, UAE	3	4	2 ▲				14	15	10 ▲			

▲ 2019 percent significantly higher

▽ 2019 percent significantly lower

An empty cell indicates a country did not participate in that year's assessment or did not have comparable data. See Appendix A for country participation in previous TIMSS assessments.

Results for Lithuania before 2015 do not include students taught in Polish or Russian.

Exhibit 2.9: Percentages of Students Reaching International Benchmarks of Science Achievement Across Assessment Years

(Continued)

Country	Intermediate International Benchmark (475)						Low International Benchmark (400)					
	Percent of Students						Percent of Students					
	2019	2015	2011	2007	2003	1995	2019	2015	2011	2007	2003	1995
Singapore	93	90	89 ▲	88 ▲	86 ▲	71 ▲	98	97	97 ▲	96 ▲	95 ▲	89 ▲
Korea, Rep. of	95	96	95			93	99	100	99			99
Russian Federation	92	91	86 ▲	82 ▲	74 ▲		99	99	98 ▲	96 ▲	93 ▲	
Japan	90	93 ▼	90	86 ▲	84 ▲	87 ▲	98	99	99	97	96 ▲	97
Finland	87	89	92 ▼				97	99	99 ▼			
Chinese Taipei	89	88	85 ▲	86 ▲	87		99	98	97 ▲	97 ▲	98	
United States	79	81 ▼	81 ▼	78	78	78	94	95 ▼	96 ▼	94	94	92
Bulgaria	71	77 ▼					87	90				
Sweden	80	82	79	76 ▲			96	96	95	95		
Australia	78	75	72 ▲	76	74	72 ▲	94	94	91 ▲	93	92	89 ▲
Lithuania	81	78	73 ▲	74 ▲	73 ▲		97	96	95 ▲	95	95 ▲	
England	81	81	76 ▲	81	79	72 ▲	96	97	93 ▲	95	94 ▲	90 ▲
Hungary	76	81	78	78	76	67 ▲	94	94	93	93	94	90 ▲
Norway (5)	83	85					97	98				
Poland	79	85 ▼					95	97 ▼				
Ireland	77	79	72 ▲			70 ▲	94	96	92			91 ▲
Hong Kong SAR	79	88 ▼	82	88 ▼	87 ▼	69 ▲	96	98 ▼	96	98 ▼	98 ▼	91 ▲
Czech Republic	81	81	81	72 ▲		77 ▲	97	96	97	93 ▲		95 ▲
Latvia	85				80 ▲		98				96 ▲	
United Arab Emirates	53	46 ▲	36 ▲				74	67 ▲	61 ▲			
Canada	75	77					95	95				
Austria	75		79 ▼	76		79 ▼	94		96	93		94
Serbia	73	77	72				92	93	91			
Germany	72	78 ▼	78 ▼	76 ▼			93	96 ▼	96 ▼	94		
Slovak Republic	76	74	79	75			92	91	94	92		
Bahrain	60	47 ▲	43 ▲				84	72 ▲	70 ▲			
Cyprus	70	56 ▲			55 ▲	39 ▲	92	86 ▲			86 ▲	74 ▲
Denmark	76	78	78	72 ▲			96	96	95	93 ▲		
New Zealand	64	67	63	65	73 ▼	66	88	88	86	87	91 ▼	85
Northern Ireland	74	76	74				94	95	94			
Kazakhstan	59		58				89		84 ▲			
Malta	63		41 ▲				86		70 ▲			
Oman	38	38	23 ▲				63	61	45 ▲			
Netherlands	76	76	86 ▼	79	83 ▼	82 ▼	96	97	99 ▼	97	99 ▼	98 ▼
Croatia	80	83	75 ▲				98	98	96 ▲			
Qatar	43	39	29 ▲				68	64 ▲	50 ▲			
Spain	71	74	67				94	95	92			
Italy	71	75	76 ▼	78 ▼	70		95	95	95	94	91 ▲	
France	59	58					86	88				
Portugal	67	72 ▼	75 ▼			43 ▲	93	96 ▼	95			73 ▲
Belgium (Flemish)	66	73 ▼	73 ▼		79 ▼		92	96 ▼	96 ▼		98 ▼	
Kuwait	27	15 ▲					49	33 ▲				
Morocco	21	17	6 ▲				42	35 ▲	16 ▲			
Armenia	47	38 ▲	26 ▲		38 ▲		80	70 ▲	58 ▲		66 ▲	
Georgia	43	41	44	26 ▲			75	74	75	59 ▲		
Chile	48	53 ▼	54 ▼				82	85	85			
Iran, Islamic Rep. of	40	33 ▲	44 ▼	36	28 ▲	15 ▲	68	61 ▲	72	65	58 ▲	42 ▲
Saudi Arabia	28	25 ▲	35 ▼				54	48 ▲	63 ▼			
Azerbaijan	32		37				65		65			
Philippines	5				19 ▼		13				34 ▼	
Benchmarking Participants												
Dubai, UAE	80	70 ▲	48 ▲	48 ▲			94	86 ▲	72 ▲	72 ▲		
Ontario, Canada	75	79	77	79	81 ▼	71	95	96	94	95	96	90 ▲
Quebec, Canada	77	78	76	74	66 ▲	77	97	97	97	96	91 ▲	94 ▲
Abu Dhabi, UAE	34	35	30				55	55	55			

▲ 2019 percent significantly higher

▼ 2019 percent significantly lower